



# Factors That Influence Attitudes toward Advance Directives among Female Cancer Patients

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**Purpose:** This study aimed to identify attitudes toward advance directives (ADs) among female cancer patients and factors related to ADs. **Methods:** The study was conducted at a university hospital in Seoul from September 19, 2020, to January 20, 2021. The participants were 153 patients diagnosed with gynecological cancer or breast cancer. Data were collected using questionnaires and included general characteristics, disease- and AD-related characteristics, knowledge and attitudes about ADs, and attitudes about dignified death. Data were analyzed using the t-test, analysis of variance, and multiple regression analysis.

**Results:** Only 2% of the participants completed ADs. The mean score for attitudes toward ADs was 3.30, indicating a positive knowledge and attitude toward dignified death. The factors related to attitudes toward ADs were attitudes toward dignified death ( $\beta = 0.25$ ,  $P = 0.001$ ), experience discussing life-sustaining treatment ( $\beta = 0.17$ ,  $P = 0.037$ ), preferred time to have a consultation about ADs ( $\beta = 0.19$ ,  $P = 0.046$ ), intention to write ADs ( $\beta = 0.15$ ,  $P = 0.038$ ), and Eastern Cooperative Oncology Group Performance Status ( $\beta = -0.37$ ,  $P < 0.001$ ). The explanatory power of these variables for attitudes toward ADs was 38.5%.

**Conclusion:** Overall, patients preferred to have a consultation about ADs when they were still active, mentally healthy, and able to make decisions. Education about ADs should be provided to patients on the first day of hospitalization for chemotherapy or while awaiting treatment in an outpatient setting so patients can write ADs and discuss them with family and friends.

**Key Words:** Advance directives, Knowledge, Attitude, Attitude to death, Right to die, Female, Neoplasms

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## INTRODUCTION

Cancer mortality in South Korea in 2020 was 160.2 deaths per 100,000 population, which was lower than that of other Organization for Economic Co-operation and Development countries, including the US (182.2 deaths per 100,000 population), the UK (221.8 deaths per 100,000 population), Germany (206.2 deaths per 100,000 population), and Austria (196.6

deaths per 100,000 population) [1]. Although developments in medical technology and scientific knowledge have extended the life expectancy, in some cases they extend the lives of cancer patients without improving patients' quality of life due to the adverse effects of treatments and recurrence. These futile life-sustaining treatments and decisions about treatments can also cause family conflicts as well as financial burdens [2].

Unlike in other countries where decisions on life-sustaining

treatment are prepared in advance when people are still healthy, in South Korea, decisions are generally only made once death is imminent [3]. Many countries have introduced advance care planning, which includes discussions and decisions on medical care when an individual cannot make rational decisions, and various efforts are being made to implement these systems. The implementation of advance directives (ADs) would provide meaningful groundwork for the implementation of advance care planning [4].

An AD is a document that expresses one's wishes regarding medical care performed at the end of life made in advance of a situation when the patient will become incapable of making decisions due to an untreatable condition or when death is unavoidable without life-sustaining treatment, as determined by a physician [5]. The right to self-determination, a premise that underpins ADs, refers to the right of an individual to voluntarily and autonomously determine what to do or what not to do related to personal issues or matters according to one's own judgment [6].

In South Korea, since the Act on Hospice and Palliative Care and Decisions on Life-Sustaining Treatment for Patients at the End of Life (hereinafter referred to as the Act on Decisions on Life-Sustaining Treatment) was enacted in February 2018, the number of those who can exercise their right to self-determination and autonomy regarding death has increased, and any individual aged 19 years or older can write ADs [7]. From February 2018 to January 31, 2023, a total of 1,600,959 people registered ADs, of whom 504,769 were men (31.5%) and 1,096,190 were women (68.5%) [7]. However, since anyone aged 19 years or older can write ADs regardless of the disease, it is difficult to accurately determine the number of patients with specific diseases who have registered ADs [7]. Previous studies on the ADs of cancer patients reported that 28% to 55% of patients wrote ADs [8,9], but there are major differences by culture. None of the 526 cancer patients included in a Chinese study wrote ADs [10], but a Canadian study from 2017 on patients with advanced cancer found that about 55% of the patients (106 out of 193 patients) wrote ADs, and 53% of them wrote ADs before a diagnosis [9].

In particular, female cancer patients tend to experience a high degree of psychological pain, body image and sexual disorders, and fears of recurrence following cancer diagnosis [11]. Female

patients with gynecological cancer or breast cancer, which are common cancers among women, sometimes undergo resection or removal of the uterus or breast, which leads to additional difficulties with secondary symptoms or problems due to psychological and social loss as well as physical loss [12]. ADs provide an opportunity for family and healthcare providers to clearly understand the patient's intentions, alleviate the psychological conflicts and economic burdens of families about the patient care plan until death, allow patients to opt out of unwanted life-sustaining treatment, and, above all, allow patients to face death the way they prefer [13].

Positive attitudes toward ADs are associated with a higher likelihood of writing ADs [14]. The factors related to attitudes toward ADs are sex, age, education level, perceived health status, Eastern Cooperative Oncology Group Performance Status (ECOG PS), awareness of ADs, experience writing ADs, preferred time to have a consultation about ADs, knowledge about ADs, intention to write ADs, experience discussing life-sustaining treatment, and attitudes toward dignified death [10,15-17]. A dignified death refers to a death in which the individual maintains dignity as a human being and faces a peaceful death [18]. Based on previous studies that found that positive attitudes toward dignified death and a higher level of knowledge about ADs were associated with positive attitudes toward ADs [15] and that making decisions about ADs was desirable in relation to dignified death [19], the relationships between knowledge about ADs, attitudes toward ADs, and attitudes toward dignified death must be examined further. However, previous studies on attitudes toward ADs have focused on nursing students [20], older adults [17], adults [15], and cancer patients in general [16,21], and studies examining the characteristics of female cancer patients in particular are insufficient.

Therefore, this study aimed to examine knowledge about ADs, attitudes toward ADs, and attitudes toward dignified death among female patients with gynecological cancer and breast cancer. By identifying the factors that influence attitudes toward ADs, this study aimed to provide basic data for developing intervention programs to foster positive attitudes toward ADs and encourage patients to write ADs.

## METHODS

### 1. Study design

This descriptive study was conducted to identify the factors that influence female cancer patients' attitudes toward ADs.

### 2. Participants

The participants in this study were female cancer patients who were hospitalized or visited an outpatient department for treatment at a tertiary hospital in Seoul. The specific selection criteria were as follows.

Female patients aged 19 years or older who had been diagnosed with gynecological cancer (cervical cancer, ovarian cancer, or vaginal cancer) or breast cancer, understood the study's purpose, and voluntarily provided written consent to participate in the study were included. The exclusion criteria were patients with terminal cancer or neurological disorders, including dementia, Alzheimer's disease, and other brain or mental disorders, that made autonomous decisions difficult, and patients whose diseases were confidential or unknown.

The required number of participants was calculated using G\*Power 3.1. With a medium effect size of 0.15, significance level of 0.05, power of 0.90, and eight predictors (education level, perceived health status, experience discussing life-sustaining treatment, experience receiving education about life-sustaining treatment, awareness of ADs, intention to write ADs, knowledge about ADs, and attitudes toward dignified death, all of which were identified as related factors in domestic and international studies), the minimum sample size for conducting multiple regression analysis (deviation from 0) was 150 people. Given a potential dropout rate of 10%, a total of 163 questionnaires were distributed. After excluding the responses of seven participants for refusing to answer questions about life-sustaining treatment, one respondent for completing the questionnaire alone without the confirmation of a guardian, and two respondents for withdrawing their participation during the study, 153 questionnaires from participants were ultimately collected and analyzed.

### 3. Study tools

#### 1) General characteristics of the participants

Variables known to relate to attitudes toward ADs from previous studies [9,10,15–17] were included. General characteristics included age, employment status, income, and desired place of death, and disease-related characteristics included primary malignancy, cancer stage, period since cancer diagnosis, perceived health status, and ECOG PS. The ECOG PS [22] is a measurement scale to identify the degree of systemic mobility of cancer patients with possible scores ranging from 0 to 5. It is used to assess patients' daily living ability, treatment status, and prognosis. Grade 0 refers to the pre-disease state when the patient is fully active and able to continue their pre-disease lifestyle without restrictions. In grade 1, the patient experiences mild symptoms but is almost completely ambulatory. In grade 2, the patient is able to maintain activity for about 50% of their waking hours but is unable to carry out work activities. In grade 3, the patient is confined to a bed or wheelchair for more than 50% of their waking hours and is capable of only limited self-care. Grade 4 refers to a state in which the patient is totally confined to a bed and is not capable of self-care. Grade 5 refers to death [9,10,22].

AD-related characteristics (27 items) included experience discussing life-sustaining treatment, education about life-sustaining treatment, awareness of ADs, how one learned about ADs, who should write ADs, experience writing ADs, preferred time to have a consultation about ADs, and intention to write ADs.

#### 2) Knowledge about advance directives

Knowledge about ADs was measured using a tool originally developed by Kim et al. [5] and modified and supplemented based on the amended Act on Decisions on Life-Sustaining Treatment by Seo [21]. The tool includes 12 items, and each item is answered with "yes," "no," or "not sure." Incorrect answers and "not sure" were scored 0 points, and correct answers were scored 1 point. This study examined the mean score and correct answer rate. Cronbach's  $\alpha$  was 0.85 in the studies by Kim et al. [5] and Seo [21] and 0.93 in this study.

### 3) Attitudes toward advance directives

Attitudes toward ADs were measured using a tool originally developed by Nolan and Bruder [23] and translated into Korean by Lee and Park in 2014 [17]. The tool consists of 16 items: opportunity for treatment choices (4 items), impact of ADs on the family (8 items), impact of ADs on treatment (3 items), and the perception of illness (1 item). Each item was scored using a 4-point Likert scale (4 for “strongly agree,” 3 for “agree,” 2 for “disagree,” and 1 for “strongly disagree”), and reverse items were calculated in reverse. A higher score indicated a positive attitude toward ADs, and the mean score was analyzed in this study. Cronbach’s  $\alpha$  was 0.74 in the study by Nolan and Bruder [23], 0.79 in the study by Lee and Park [17], and 0.80 in this study.

### 4) Attitudes toward dignified death

The attitudes toward dignified death were measured using the Attitude toward Dignified Death scale developed by Jo [18]. The tool consists of 30 items on maintaining emotional comfort (10 items), arranging social relationships (9 items), avoiding suffering (3 items), maintaining autonomous decision-making (4 items), and role preservation (4 items). Each item is scored using a 4-point Likert scale (1 for “strongly disagree,” 2 for “disagree,” 3 for “agree,” and 4 for “strongly agree”). A higher score indicates a higher desire for dignified death, and the mean score was analyzed in this study. Cronbach’s  $\alpha$  was 0.92 for the original tool and 0.93 in this study.

## 4. Data collection

After receiving approval from the institutional review board of the tertiary hospital in S city (IRB No. 2020-07-029), the data were collected from September 19, 2020, to January 20, 2021. Before conducting the survey, the researchers requested the cooperation of the medical and nursing departments of the hospital, which was granted after submitting the research plan, instructions, consent form, and questionnaire. The purpose of the study was explained to the participants, and their written consent was obtained. The written consent form included an explanation that the survey data would be used for research purposes only, that anonymity and confidentiality would be ensured, that the participants could withdraw their participation at any time and that there would be no negative

repercussions for withdrawing. The survey was a self-reported questionnaire, and the participants responded directly to the questionnaire. If participants had difficulty writing, poor eyesight, or a condition that affected their ability to communicate in words, the researcher read the questions aloud and allowed them to respond.

All surveys were completed in the presence of the researcher, a nurse from an obstetrics and gynecology outpatient department who had received education about life-sustaining treatment, and a nurse dedicated to providing counseling and education about life-sustaining treatment to patients and caregivers when necessary during the decision-making process related to life-sustaining treatment. The survey took approximately 30 minutes to complete, and masks were provided to the participants after the survey.

## 5. Data analysis

The collected data were analyzed using SPSS for Windows (version 25.0; IBM Corp., Armonk, NY, USA).

1) Descriptive statistics were used to analyze the participants’ general characteristics, disease-related characteristics, AD-related characteristics, attitudes toward ADs, knowledge about ADs, and attitudes toward dignified death, and the correct answer rate was calculated as a percentage.

2) The t-test and one-way analysis of variance was used to analyze the differences in attitudes toward ADs according to the participants’ general characteristics, disease-related characteristics, and AD-related characteristics.

3) Pearson’s correlation coefficient was used to analyze the correlation between knowledge and attitudes toward ADs and attitudes toward dignified death.

4) Multiple regression analysis was conducted to analyze the factors that influenced the participants’ attitudes toward ADs. In order to confirm the degree of explanation of the related factors, a total of 10 variables were analyzed, including 7 predictors, excluding education level, which was not significant in the univariate analysis, ECOG PS, which was significant in the univariate analysis, and who wrote the AD and preferred time to have a consultation about ADs.

## RESULTS

### 1. General characteristics of the participants

The mean age of the participants was  $55.6 \pm 10.46$  years. The largest proportion of participants was aged 50 to 59 years ( $n=62$ , 40.5%), and 49 patients (32%) were employed. The most common preferred place of death was the hospital ( $n=81$ , 52.9%).

The most prevalent diagnosis, cancer stage, and period since cancer diagnosis were breast cancer ( $n=115$ , 75.2%), stage II ( $n=53$ , 34.6%), and less than a year ( $n=64$ , 41.8%), respectively. Seventy-three participants (47.7%) had a perceived health status of fair, and most patients had an ECOG PS of grade 0 ( $n=78$ , 51%).

Forty-three patients (28.1%) had discussions about life-sustaining treatment, and 27 patients (17.6%) received education about life-sustaining treatment. Among 64 patients (41.8%) who were aware of ADs, 30 patients (46.9%) were aware of it through broadcast media. Only 3 (2%) of the 153 patients in this study wrote ADs and 127 patients (83%) responded that they should be the person to write ADs. More than half of the participants ( $n=83$ , 54.2%) responded that the preferred time to have a consultation about ADs was when they are still mentally healthy and can make decisions, and 95 patients (62.1%) intended to write ADs (Table 1).

### 2. Knowledge and attitudes about advance directives and attitudes toward dignified death

The mean score for knowledge about ADs was 0.54 out of 1 point with a correct answer rate of 53.8%. The item with the highest correct answer rate was “a patient has the right to permit or reject treatment offered” (100%) followed by “it is a patient’s right to discontinue life-sustaining treatment” (97.4%). The item with the lowest correct answer rate was “ADs must be written by a registered institution designated by the Ministry of Health and Welfare to be legally effective” (26.8%) followed by “ADs include asking patients about their intention to use hospice if they lose their ability to make decisions” (28.1%) and “in order to write an AD, a lawyer’s support is required” (34%).

The mean score for attitudes toward ADs was  $3.30 \pm 0.42$

**Table 1.** General Characteristics of the Participants (N=153).

Characteristics	Mean $\pm$ SD (range) or n (%)
General items	
Age (yr)	$55.61 \pm 10.46$ (25~80)
$\leq 39$	10 (6.5)
40~49	27 (17.6)
50~59	62 (40.5)
$\geq 60$	54 (35.4)
Education level	
Middle school or below	39 (25.5)
High school	58 (37.9)
College or above	56 (36.6)
Employment status	
Yes	49 (32.0)
No	104 (68.0)
Family income* (10,000 won/month)	
$< 300$	62 (41.1)
$\geq 300$	89 (58.9)
Desired place of death	
Home	57 (37.3)
Hospital	81 (52.9)
Other	15 (9.8)
Disease related items	
Primary malignancy	
Cervical	18 (11.8)
Breast	115 (75.2)
Ovarian/Vaginal	20 (13.0)
Cancer stage	
I	34 (22.2)
II	53 (34.6)
III	43 (28.1)
IV	23 (15.1)
Period since cancer diagnosis (months)	$39.37 \pm 57.63$ (1~336)
$\leq 11$	64 (41.8)
12~35	37 (24.2)
36~59	16 (10.5)
$\geq 60$	36 (23.5)
Perceived health status	
Good	72 (47.1)
Fair	73 (47.7)
Poor	8 (5.2)
ECOG performance status	
0	78 (51.0)
1	65 (42.5)
2 or above	10 (6.5)

\*N=151.

ECOG: Eastern Cooperative Oncology Group.

out of 4 points. The item with the highest mean score was “it is better to make an AD when you are healthy” ( $3.72 \pm 0.62$  points) followed by “making my end-of-life treatment wishes



Table 1. Continued.

Characteristics	Mean±SD or n (%)
AD-related items	
Experience discussing life-sustaining treatment	
Yes	43 (28.1)
No	110 (71.9)
Education about life-sustaining treatment	
Yes	27 (17.6)
No	126 (82.4)
Awareness of ADs	
Yes	64 (41.8)
No	89 (58.2)
How one learned about ADs (n=64)	
Healthcare provider	7 (10.9)
Broadcast media	30 (46.9)
Surrounding people	16 (25.0)
Family	7 (10.9)
Religion	4 (6.3)
Experience writing ADs	
Yes	3 (2.0)
No	150 (98.0)
Who should write ADs	
Self	127 (83.0)
Self and family	26 (17.0)
Preferred time to have a consultation about ADs	
Before cancer diagnosis	26 (17.0)
Upon diagnosis	10 (6.5)
As cancer progresses	14 (9.2)
End of life	17 (11.1)
Never	3 (2.0)
When still mentally healthy and able to make decisions regardless of the cancer stage	83 (54.2)
Intention to write ADs	
Yes	95 (62.1)
No	58 (37.9)

ADs: Advance Directives.

clear with an AD would keep my family from disagreeing over what to do if I were very sick and unable to decide for myself” (3.65±0.60 points). The item with the lowest mean score was “I have choices about the treatment I receive at the end of my life” (2.19±1.29 points) followed by “I think my family would want me to have an AD” (2.77±1.07 points).

The mean score for attitudes toward dignified death was 3.30±0.46 out of 4 points. The item with the highest mean score was “dying peacefully in the arms of family members” (3.69±0.64 points), followed by “accepting death in peace as if one is asleep” (3.66±0.56 points). The item with the lowest mean score was “organ donation at the end of life” (2.18±1.22

points), followed by “ending one’s life as a means of escape from suffering” (2.57±1.16 points) and “dying at home” (2.69±1.13 points) (Table 2).

### 3. Differences in attitudes toward advance directives according to the participants’ characteristics

There were no significant differences in attitudes toward ADs according to the participants’ characteristics. Scores for attitudes toward ADs according to disease-related characteristics were higher in patients with a perceived health status of good (3.43 points) than in those with a perceived health status of fair (3.17 points) (F=7.47, P=0.001) and in patients with an ECOG PS of grade 0 (3.44 points) than in those with an ECOG PS of grades 1 (3.20 points) and 2 or higher (2.96 points) (F=11.05, P<0.001). Scores for attitudes toward ADs according to AD-related characteristics were higher in patients who had discussions about life-sustaining treatment (3.50 points) than in those who did not (3.22 points) (t=3.67, P<0.001) and in patients who received education about life-sustaining treatment (3.48 points) than in those who did not (3.27 points) (t=2.54, P=0.012). Patients who were aware of ADs (3.43 points) and who responded that the patient alone should write ADs (3.34 points) scored higher for attitudes toward ADs than those who were not aware of ADs (3.21 points) (t=3.22, P=0.002) and those who responded “self and family” for who should write ADs (3.14 points) (t=2.25, P=0.026). Scores for attitudes toward ADs were higher in patients who preferred to have a consultation about ADs when they are still mentally healthy and can make decisions (3.43 points) than in those who preferred to have a consultation about ADs at the end of life (2.99 points) (F=5.46, P<0.001), and in patients who intended to write ADs (3.36 points) than in those who did not (3.20 points) (t=2.38, P=0.018) (Table 3).

### 4. Correlation between knowledge and attitudes about advance directives and attitudes toward dignified death

The participants’ attitudes toward ADs were positively correlated to knowledge about ADs (r=0.20, P=0.014) and attitudes toward dignified death (r=0.47, P<0.001). Additionally, there was a positive correlation between knowledge about ADs and attitudes toward dignified death (r=0.21, P=0.009) (Table 4).

**Table 2.** Scores for Attitudes toward ADs, Knowledge about ADs, and Attitudes toward Dignified Death (N=153).

Items	Mean $\pm$ SD	Correct rate (%)
Knowledge about ADs		
Total	0.54 $\pm$ 0.33	53.8
1. A patient has the right to permit or reject treatment offered.	1.00 $\pm$ 0.00	100.0
2. It is a patient's right to discontinue life-sustaining treatment.	0.97 $\pm$ 0.16	97.4
3. ADs are supposed to be prepared while one is competent.	0.55 $\pm$ 0.49	55.6
4. An AD refers to a document that states in advance that a patient wants or does not want to receive any treatment in case he or she loses his or her ability to make decisions.	0.52 $\pm$ 0.50	52.9
5. ADs include asking patients about their intention to use hospice if they lose their ability to make decisions.	0.28 $\pm$ 0.45	28.1
6. ADs must be written by him or herself with their own volition.	0.56 $\pm$ 0.49	56.2
7. ADs shall be able to be written by people whose age is 18 years old or older even if he or she is healthy.	0.42 $\pm$ 0.49	42.5
8. Life-sustaining treatment refers to medical treatment for a patient in the end-of-life process from conditions such as cardiopulmonary resuscitation, hemodialysis, administering anticancer drugs and using mechanical ventilation. It extends the duration of the end-of-life process without curative effects.	0.60 $\pm$ 0.49	60.1
9. In order to write an AD, a lawyer's support is required.	0.34 $\pm$ 0.47	34.0
10. ADs are always able to be amended and withdrawn.	0.43 $\pm$ 0.49	43.8
11. ADs must be written by a registered institution designated by the Ministry of Health and Welfare to be legally effective.	0.26 $\pm$ 0.44	26.8
12. If an AD is prepared, it is effective even if the patient is unconscious.	0.47 $\pm$ 0.50	47.7
Attitudes toward ADs		
Total	3.30 $\pm$ 0.42	
Opportunity for treatment choices		
1. I have choices about the treatment I receive at the end of my life.	2.19 $\pm$ 1.29	
2. I would be given choices about the treatment I receive at the end of my life.	3.39 $\pm$ 0.76	
3. My doctor would include my concerns in decisions about my treatment at the end of my life.	3.42 $\pm$ 0.70	
4. If I could not make decisions, my family would be given choices about the treatment I would receive.	3.44 $\pm$ 0.77	
Impact of ADs on the family		
5. I think my family would want me to have an AD.	2.77 $\pm$ 1.07	
6. Making my end-of-life treatment wishes clear with an AD would keep my family from disagreeing over what to do if I were very sick and unable to decide for myself.	3.65 $\pm$ 0.60	
7. Having an AD would make my family feel left out of caring for me.	3.50 $\pm$ 0.70	
8. Making my end-of-life treatment wishes clear with an AD would help to prevent guilt in my family.	3.47 $\pm$ 0.79	
9. Making my end-of-life treatment wishes clear with an AD would have no impact on my family.	3.32 $\pm$ 0.82	
10. Having an AD would prevent costly medical expenses for my family.	3.49 $\pm$ 0.76	
11. Having an AD would make sure that my family knows my treatment wishes.	3.63 $\pm$ 0.59	
12. My family wants me to have an AD.	2.79 $\pm$ 1.09	
Effect of an AD on treatment		
13. Having an AD would ensure that I get the treatment at the end of my life that I want.	3.58 $\pm$ 0.64	
14. I trust one of my family or friends to make treatment decisions for me if I cannot make them myself.	3.42 $\pm$ 0.82	
15. It is better to make an AD when you are healthy.	3.72 $\pm$ 0.62	
Perception of illness		
16. I am not sick enough to have an AD.	3.09 $\pm$ 0.94	

ADs: Advance Directives.

## 5. Factors influencing attitudes toward advance directives

Including the factors (perceived health status, ECOG PS, experience discussing life-sustaining treatment, education about

life-sustaining treatment, awareness of ADs, who should write ADs, the preferred time to have a consultation about ADs, and intention to write ADs) that were significant in the univariate analysis, knowledge about ADs and attitudes toward dignified death were selected as independent variables and verified

Table 2. Continued.

Items	Mean ± SD	Correct rate (%)
Attitudes toward Dignified Death		
Total	3.30 ± 0.46	
Maintaining emotional comfort		
5. Acceptance of one's death without bitter feelings.	3.61 ± 0.62	
6. Dying peacefully in the arms of family members.	3.69 ± 0.64	
7. Dying at home.	2.69 ± 1.13	
8. Dying after reconciliation and forgiveness with close people.	3.28 ± 0.81	
10. Organ donation at the end of life.	2.18 ± 1.22	
14. Having time to reflect on one's life.	3.07 ± 0.97	
15. Being prepared for one's death in ordinary times.	3.22 ± 0.90	
19. Being helped and encouraged from the healthcare team while sick	3.41 ± 0.64	
25. Accepting death in peace as if one is asleep.	3.66 ± 0.56	
27. Thinking positively and giving thanks at the moment of one's death	3.27 ± 0.87	
Arranging social relationships	3.36 ± 0.52	
9. Sharing and organizing one's belongings with others.	3.35 ± 0.74	
12. Dying without hesitation about ending one's earthly existence.	3.47 ± 0.76	
13. Dying with a smiling face.	3.49 ± 0.74	
20. Maintaining one's sense of self at the end of life.	3.39 ± 0.68	
21. Preserving physical integrity at the end of life.	3.29 ± 0.73	
23. Not being a burden to others when facing death.	3.35 ± 0.67	
24. Receiving prayers and encouragement from people at the end of life.	3.47 ± 0.72	
26. Facing one's death without fear.	3.33 ± 0.83	
30. Making the decision to die according to one's conscience.	3.18 ± 0.89	
Avoiding suffering	2.86 ± 0.78	
11. Dying suddenly without suffering	3.18 ± 1.06	
17. Ending one's life as a means of escape from suffering.	2.57 ± 1.16	
18. Being committed to ending one's life.	2.86 ± 1.00	
Maintaining autonomous decision-making	3.64 ± 0.54	
1. Not clinging to mechanical instruments	3.65 ± 0.64	
2. Not receiving meaningless treatment for the prolongation of life	3.63 ± 0.66	
3. Performing life-sustaining procedures only when one chooses.	3.65 ± 0.61	
4. Dying naturally at the end of one's life span.	3.65 ± 0.66	
Role preservation	3.36 ± 0.59	
16. Making a clear decision about one's death using ADs.	3.49 ± 0.71	
22. Affirming and maintaining one's role at the end of life	3.19 ± 0.82	
28. Perceiving oneself as trustworthy upon death	3.42 ± 0.69	
29. Disregarding the opinions of others while facing death	3.35 ± 0.73	

ADs: Advance Directives.

using regression analysis. The factors that influenced attitudes toward ADs were ECOG PS, experience discussing life-sustaining treatment, the preferred time to have a consultation about ADs, the intention to write ADs, and attitudes toward dignified death. A higher ECOG PS grade was associated with a lower score for attitudes toward ADs ( $\beta = -0.37, P < 0.001$ ), and the scores for attitudes toward ADs were higher when the patient had discussed life-sustaining treatment ( $\beta = 0.17,$

$P = 0.037$ ), preferred to make decisions about ADs when they are still mentally healthy and can make decisions compared to before cancer diagnosis ( $\beta = 0.19, P = 0.046$ ), and intended to write ADs ( $\beta = 0.15, P = 0.038$ ). In addition, a higher score for attitudes toward dignified death was associated with a higher score for attitudes toward ADs ( $\beta = 0.25, P = 0.001$ ). The explanatory power of these variables related to attitudes toward ADs was 38.5% ( $F = 7.36, P < 0.001$ ) (Table 5).



**Table 3.** Differences in Attitudes toward Advanced Directives by Participants' Characteristics (N=153).

Characteristics	Mean ± SD	t/F	P (Scheffe)
General items			
Age (yr)			
≤39	3.09±0.34	2.04	0.111
40~49	3.19±0.31		
50~59	3.35±0.40		
≥60	3.34±0.47		
Education level			
Middle school or below	3.25±0.45	0.43	0.649
High school	3.34±0.42		
College or above	3.31±0.38		
Employment status			
Yes	3.32±0.43	0.34	0.735
No	3.30±0.41		
Family income* (10,000 won/month)			
<300	3.34±0.43	0.80	0.424
≥300	3.29±0.41		
Desired place of death			
Home	3.36±0.45	0.74	0.479
Hospital	3.28±0.39		
Others	3.30±0.42		
Disease related items			
Primary malignancy			
Cervical	3.21±0.49	1.66	0.193
Breast	3.34±0.40		
Ovarian/Vaginal	3.19±0.42		
Cancer stage			
I	3.39±0.43	1.72	0.166
II	3.36±0.36		
III	3.20±0.42		
IV	3.25±0.48		
Period since cancer diagnosis (months)			
≤11	3.20±0.45	2.46	0.065
12~35	3.40±0.39		
36~59	3.30±0.39		
≥60	3.39±0.35		
Perceived health status			
Good <sup>a</sup>	3.43±0.35	7.47	0.001 (a>b)
Fair <sup>b</sup>	3.17±0.44		
Poor <sup>c</sup>	3.38±0.40		
ECOG performance status			
0 <sup>a</sup>	3.44±0.37	11.05	<0.001 (a>b,c)
1 <sup>b</sup>	3.20±0.39		
2 or above <sup>c</sup>	2.96±0.57		

\*N=151.

ECOG: Eastern Cooperative Oncology Group.

## DISCUSSION

This study was conducted to examine the relationship be-

tween knowledge and attitudes about ADs and attitudes toward dignified death among female cancer patients and to identify the factors that influenced their attitudes toward ADs.

Table 3. Continued.

Characteristics	Mean ± SD	t/F	P (Scheffe)
AD-related items			
Experience discussing life-sustaining treatment			
Yes	3.50 ± 0.45	3.67	<0.001
No	3.22 ± 0.37		
Education about life-sustaining treatment			
Yes	3.48 ± 0.46	2.54	0.012
No	3.27 ± 0.39		
Awareness of ADs			
Yes	3.43 ± 0.40	3.22	0.002
No	3.21 ± 0.40		
How one learned about ADs (n=64)			
Healthcare provider	3.32 ± 0.51	2.30	0.069
Broadcast media	3.45 ± 0.36		
Surrounding people	3.41 ± 0.39		
Family	3.22 ± 0.43		
Religion	3.92 ± 0.79		
Experience writing ADs			
Yes	3.46 ± 0.53	0.65	0.520
No	3.30 ± 0.41		
Who should write ADs			
Self	3.34 ± 0.41	2.25	0.026
Self and family	3.14 ± 0.40		
Preferred time to have a consultation about ADs			
Before cancer diagnosis <sup>a</sup>	3.17 ± 0.44	5.46	<0.001 (d<f)
Upon cancer diagnosis <sup>b</sup>	3.40 ± 0.45		
As cancer progresses <sup>c</sup>	3.11 ± 0.26		
End of life <sup>d</sup>	2.99 ± 0.29		
Never <sup>e</sup>	3.14 ± 0.18		
When still mentally healthy and able to make decisions regardless of the cancer stage <sup>f</sup>	3.43 ± 0.40		
Intention to write ADs			
Yes	3.36 ± 0.42	2.38	0.018
No	3.20 ± 0.39		

ADs: Advance Directives.

Table 4. Correlations between Knowledge and Attitudes about ADs, Attitude toward Dignified Death (N=153).

Variables	r (P)	
	Knowledge about ADs	Attitudes toward dignified death
Attitudes toward dignified death	0.21 (0.009)	-
Attitudes toward ADs	0.20 (0.014)	0.47 (<0.001)

ADs: Advance Directives.

In this study, only 3 (2%) of the 153 patients wrote ADs, which was a significantly lower proportion than the 28% to 55% AD completion rates of German and Canadian stud-

ies [8,9]. While Germany implemented the third Act on the Amendment of the Care Act (Drittes Gesetz Zur Änderung des Betreuungsrechts) on September 1, 2009 [24], and Canada implemented its act on life-sustaining treatment decisions by proxy in Nova Scotia and Quebec in 1992 [25], South Korea's Act on Decisions on Life-Sustaining Treatment was enacted in February 2018, indicating a large cultural difference. Moreover, 22.9% of the participants in a previous study had an ECOG PS of grade 0, in which patients are still able to maintain a pre-disease lifestyle without restrictions [9], while 51% of the patients in this study were grade 0, which may be why most of the participants did not write ADs, since their diagno-

Table 5. Factors that influenced Attitudes toward Advance Directives (N=153).

Variables	B	SE	$\beta$	t	P
Disease related items					
Perceived health status					
Good	ref				
Fair	-0.01	0.07	-0.01	-0.12	0.904
Poor	0.25	0.15	0.13	1.67	0.097
ECOG performance status					
0~4	-0.23	0.05	-0.37	-4.19	<0.001
AD-related items					
Experience discussing life-sustaining treatment					
No	ref				
Yes	0.16	0.08	0.17	2.11	0.037
Education about life-sustaining treatment					
No	ref				
Yes	0.08	0.09	0.08	0.92	0.361
Awareness of ADs					
No	ref				
Yes	0.05	0.07	0.06	0.70	0.488
Who should write ADs					
Self	ref				
Self and Family	0.02	0.08	0.02	0.23	0.822
Preferred time to have a consultation about ADs					
Before cancer diagnosis	ref				
Upon cancer diagnosis	0.06	0.13	0.03	0.45	0.653
As cancer progresses	-0.14	0.11	-0.10	-1.26	0.212
End of life	0.02	0.12	0.01	0.14	0.887
When mentally healthy and able to make decisions regardless of the cancer stage	0.16	0.08	0.19	2.01	0.046
Never	-0.11	0.21	-0.04	-0.53	0.599
Intention to write ADs					
No	ref				
Yes	0.13	0.06	0.15	2.10	0.038
Knowledge about ADs					
Attitudes toward dignified death	-0.01	0.11	-0.01	-0.05	0.959
	0.23	0.07	0.25	3.33	0.001
F (P) 7.36 (<0.001)					
R <sup>2</sup> =0.446					
Adjusted R <sup>2</sup> =0.385					

ECOG: Eastern Cooperative Oncology Group, ADs: Advance Directives.

ses did not interfere with their daily lives or social activities.

The item with the highest score for attitudes toward ADs was “it is better to make an AD when you are healthy,” which also had the highest score in a study of elderly cancer patients [16]. Based on these results, it can be concluded that cancer patients wanted to write ADs when they were healthy, which coincides with the concept and purpose of ADs. The item with the lowest score for attitudes toward ADs was “I have choices about the treatment I receive at the end of my life,” which was consistent with the findings of a previous study on elderly cancer

patients [16]. Although there was a difference in the mean age of the participants in this study (55.6 years old) and the previous study (70.7 years old) [16], the proportion of patients with a perceived health status of fair or better was similar at 94.8% and 94.6%, respectively, which may correlate to the low score related to choosing the treatment they receive at the end of life.

In this study, the mean score for knowledge about ADs was 0.54 out of 1 point with a correct answer rate of 53.8%, which was lower than the mean score of 0.67 points in a previous study [21] on home-based cancer patients enrolled in pub-

lic health centers that used the same measurement tool. The patients in the previous study [21] are believed to have had opportunities to learn about ADs, while the patients in this study had less access to leaflets, promotion videos, and counseling related to ADs since the hospital in this study was not a designated institution for ADs. Therefore, services related to ADs should be expanded so female cancer patients can receive counseling about ADs and register their ADs immediately when they are hospitalized or visit an outpatient department.

Among the items assessing knowledge about ADs, “a patient has the right to permit or reject treatment offered” and “it is a patient’s right to discontinue life-sustaining treatment” had the highest correct answer rates, which was consistent with the results of a study by Seo [21] on home-based cancer patients. This result could suggest that cancer patients are aware of the importance of the right of patients to discontinue treatment or life-sustaining treatment, indicating a positive view of life-sustaining treatment. In a study [26] on terminal cancer patients and physicians in a hospice ward, both patients and physicians wanted to make the decision to withdraw life-sustaining treatment together with the patient and family. Therefore, sufficient discussion about life-sustaining treatment with family should be undertaken before the patient’s condition deteriorates to understand the scope of the patient’s wishes and fully reflect the patient’s intentions regarding life-sustaining treatment. Through this, patient autonomy regarding decisions on life-sustaining treatment should be strengthened so that families and healthcare providers do not make decisions that overlook patients’ right to self-determination.

The items that showed the lowest correct answer rates were “ADs must be written by a registered institution designated by the Ministry of Health and Welfare to be legally effective” and “in order to write an AD, a lawyer’s support is required,” which is a similar finding to those of previous studies on nursing students [20] and home-based cancer patients [21]. These items pertained to legal procedures, and the participants may have believed they needed a lawyer’s assistance or legal help. Therefore, promotion and educational efforts should be undertaken to improve female cancer patients’ understanding of the details and legal regulations related to writing ADs.

Among the 5 domains of attitudes toward dignified death, “maintaining autonomy in decision-making” showed the

highest mean score, which was similar to the results of studies on middle-aged adults [15] and cancer patients in general [14]. This result indicates that autonomous decision-making is essential when deciding on dignified death. Therefore, healthcare providers should hold proactive discussions to ensure that female cancer patients are able to make autonomous decisions and prepare for dignified death.

Among the items on attitudes toward dignified death, “ending one’s life as a means of escape from suffering” showed a low mean score, which was similar to the finding of a previous study [14] on cancer patients, which found that the score for “avoiding suffering” was low. Based on this result, female cancer patients may not choose death to escape from suffering but rather consider dignified death as a way to end their lives as they age. Additionally, “dying at home” showed a low score. In a Chinese study [10], male and female cancer patients preferred to die at home, while the patients in this study preferred to die in the hospital. Given the results of another study [27] that found that female cancer patients were more dependent on hospitals due to a lack of caregivers at home when they were sick and therefore had a lower quality of life, female cancer patients in this study possibly wanted to experience a peaceful death by receiving treatment at a hospital, and they did not want to burden their families with holding a funeral at home or with caretaking responsibilities.

Knowledge about ADs and attitudes toward dignified death positively correlated to attitudes toward ADs. In order to encourage a positive attitude toward ADs among female cancer patients, their knowledge of ADs must be increased by providing them with information about ADs and enhancing their understanding. However, even among those who know about ADs, if people do not know the terms of ADs, the implementation rate will decrease [19]. To improve this, patients should first understand how to write ADs, their terms, definitions related to ADs, different types of life-sustaining treatment, and information about hospice. In a study of the predictors of city dwellers’ attitudes toward dignified death [19], attitudes toward the withdrawal of life-sustaining treatment had the greatest influence. Therefore, in order to improve the attitudes of female cancer patients toward dignified death, patients should be encouraged to think about their life and death and share their opinions about life-sustaining treatment with their

family members and friends when they become terminally ill.

In this study, the factors that influenced attitudes toward ADs were ECOG PS, experience discussing life-sustaining treatment, preferred time to have a consultation about ADs, intention to write ADs, and attitudes toward dignified death. ECOG PS was identified as the most important predictor of attitudes toward ADs in this study, and a lower ECOG PS grade, which corresponds to better degrees of activity, was associated with a positive attitude toward ADs, which suggests the importance of daily life to female cancer patients. Meanwhile, in a Chinese study [10] of 526 cancer patients, a higher ECOG PS grade was associated with a more positive attitude toward ADs; therefore, further in-depth research will be required.

Discussions about life-sustaining treatment are crucial, as evidenced by a previous study [9] that found that discussions on life-sustaining treatment and referrals to palliative care influenced the implementation of ADs after patients are diagnosed with cancer. In this study, experience discussing ADs was identified as a factor that influenced attitudes toward ADs, which was similar to the findings of previous studies [9,28] on cancer patients. However, cancer patients who are not familiar with ADs may feel anxiety and fear if discussions about ADs abruptly begin only when their condition deteriorates, and conversations about life-sustaining treatment decisions may be a traumatic experience [16]. Furthermore, given the finding of a previous study [14] that cancer patients who experienced discussions about ADs with families were 15.87 times more likely to have the intention to write ADs than those who did not, active interventions and efforts by healthcare providers should be undertaken to encourage regular communication between patients and families.

The preferred time to have a consultation about ADs was also found to be a factor that influenced attitudes toward ADs. The patients in this study wanted to write ADs when they were still mentally healthy and they could make decisions regardless of cancer stage rather than at any specific stage, including upon cancer diagnosis, as cancer progresses, and at the end of life. This finding was similar to that of a German study [8] on cancer patients in general. Nevertheless, the finding of a study [8] that 92% of cancer patients who did not write ADs had never received professional education about ADs and 50% of them wanted education immediately or within a few weeks

suggests the importance of counseling for cancer patients and that their education-related needs are not satisfied. Therefore, counseling and discussions about the AD system and registering ADs should be provided to female cancer patients in addition to information about concepts related to different types of life-sustaining treatment. In addition, cancer patients preferred to be educated about ADs by healthcare providers [9], and the support of healthcare providers positively impacted cancer patients' attitudes toward ADs [28]. These findings indicate a need for healthcare providers to actively participate. In particular, nurses greatly influenced patients' decision-making processes at the end of life, and patients and families wanted nurses who could clearly explain life-sustaining treatment [29]. These findings suggest that nurses play a crucial role in ensuring the effectiveness of counseling and education programs about ADs.

The intention to write ADs was also found to be a factor that influenced patients' attitudes toward ADs, which was a similar finding to that of other studies [14,15] on cancer patients and middle-aged and older adults. In a study [17] on older adults living at senior centers, the intention to write ADs was the only factor that influenced the participants' attitudes toward ADs. Therefore, in order to increase patients' intentions to write ADs, it is important to provide them with knowledge on ADs first so they fully understand the concept and need for ADs [14]. To this end, life-sustaining treatment should be discussed organically by providing public service announcements at the national level, health lectures or counseling at hospitals or from local governments, and education on preparation for death at welfare centers and lifelong education centers. Additionally, it is important to ensure that making decisions on life-sustaining treatment for oneself is not an unusual or anomalous process, but rather a natural part of life.

This study had some limitations. First, the findings of this study should not be generalized to all female cancer patients since this study was only conducted with female patients with gynecological cancer and breast cancer who were hospitalized or visited an outpatient department at a single hospital. Second, since the hospital in this study was not an AD-designated institution, the results cannot be expanded to AD-designated institutions. Lastly, 93.5% of the participants in this study had an ECOG PS of grade 0 or 1, and data on patients with other

ECOG PS grades were not collected. In the future, comparative studies that consider the characteristics of AD-designated and non-AD-designated institutions and studies that analyze the effect of education on ADs on the day of hospitalization for chemotherapy should be conducted.

Since the survival rate of female cancer patients compared to male cancer patients is increasing and women tend to solve problems with and receive practical help from their families when faced with challenges [30], this study is significant since it identified female cancer patients' knowledge and attitudes toward ADs, attitudes toward dignified death, and other influential factors. This study will provide basic data for developing intervention programs for female cancer patients to establish a more positive attitude toward ADs and enhance their intention to write ADs.

## CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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Conception or design of the work: all authors. Data collection: AK. Data analysis and interpretation: all authors. Drafting the article: AK. Critical revision of the article: all authors. Final approval of the version to be published: all authors.

## SUPPLEMENTARY MATERIALS

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